AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 14, 15, 20, 25-26 and 52 as indicated below.

1. (Currently Amended) A method of fabricating a magnetic memory cell, comprising:

providing a substrate on which the magnetic memory cell is formed;

depositing a first ferromagnetic layer;

depositing a dielectric layer over the first ferromagnetic layer; and

depositing a second ferromagnetic layer over the dielectric layer, wherein depositing at least one of the first or second ferromagnetic layers comprises depositing a metal oxide by multiple ALD cycles and subsequently reducing the metal oxide to elemental metal.

2. (Original) The method of Claim 1, wherein the magnetic memory cell comprises a magnetic tunneling junction (MTJ).

3. (Original) The method of Claim 1, wherein the magnetic memory cell is a magnetic random access memory cell.

4. (Original) The method of Claim 1, wherein the dielectric layer is deposited by ALD.

5. (Original) The method of Claim 1, wherein the dielectric layer comprises aluminum oxide.

6. (Original) The method of Claim 1, wherein the first ferromagnetic layer is deposited by ALD.

7. (Original) The method of Claim 6, wherein depositing the first ferromagnetic layer by ALD comprises depositing a metal oxide by ALD and subsequently reducing the metal oxide to elemental metal.

8. (Previously Presented) The method of Claim 7, wherein the elemental metal comprises cobalt.

9. (Original) The method of Claim 1, wherein depositing the second ferromagnetic layer comprises an ALD process.

10. (Original) The method of Claim 9, wherein depositing the second ferromagnetic layer comprises depositing a metal oxide by ALD and subsequently reducing the metal oxide to elemental metal.

11. (Original) The method of Claim 10, wherein the elemental metal comprises cobalt.

12. (Original) The method of Claim 1, wherein the first ferromagnetic layer has a lower magnetic permeability than the second ferromagnetic layer.

13. (Original) The method of Claim 1, wherein the first ferromagnetic layer is thinner than the second ferromagnetic layer.

14. (Currently Amended) A method of fabricating a magnetic memory cell, comprising:

providing a substrate on which the magnetic memory cell is formed;

depositing a first magnetic layer on the substrate;

forming a dielectric layer over the first magnetic layer;

depositing a ~~magnetic~~ metal oxide layer comprising a magnetic metal over the dielectric layer by multiple atomic layer deposition (ALD) cycles; and

reducing the ~~magnetic~~ metal oxide layer to a magnetic elemental metal layer.

15. (Currently Amended) A method of fabricating a magnetic memory cell, comprising:

providing a substrate on which the magnetic memory cell is formed;

forming a first magnetic layer on the substrate;

depositing a first non-magnetic metal oxide layer over the first magnetic layer;

converting the first non-magnetic metal oxide layer to a first non-magnetic metal layer;

depositing an insulating layer on the first non-magnetic metal layer;

depositing a second non-magnetic metal oxide layer by multiple atomic layer deposition (ALD) cycles;

converting the second non-magnetic metal oxide layer to a second non-magnetic metal layer; and

depositing a second magnetic layer on the second non-magnetic metal layer.

16. (Original) The method of Claim 15, wherein the first non-magnetic metal oxide layer is deposited by ALD.

17. (Original) The method of Claim 15, wherein the first non-magnetic metal oxide layer and the second non-magnetic metal oxide layer are converted to the first and second non-magnetic metal layers by reducing the metal oxide to elemental metal.

18. (Original) The method of Claim 17, wherein reducing comprises exposing the metal oxide layer to a chemical selected from the group consisting of hydrogen, hydrogen-rich radicals, carbon monoxide, alcohol vapor, aldehyde vapor and carboxylic acid vapor.

19. (Original) The method of Claim 15, wherein the first and the second non-magnetic metal oxide layers comprise copper oxide.

20. (Currently Amended) A method of fabricating a magnetic nanolaminate structure, comprising:

depositing a plurality of metal oxide layers on a substrate by multiple atomic layer deposition (ALD) cycles, wherein at least two of the metal oxide layers differ in composition; and

subsequently converting at least one of the plurality of metal oxide layers to an elemental metal layer ~~layers~~, wherein at least one of the metal oxide and elemental metal layers is magnetic.

21. (Original) The method of Claim 20, wherein the magnetic nanolaminate structure is part of a magnetic memory device.

22. (Original) The method of Claim 20, wherein the magnetic nanolaminate structure is part of a read-head.

23. (Original) The method of Claim 20, wherein the magnetic nanolaminate structure comprises a magnetic tunneling junction.

24. (Original) The method of Claim 20, wherein the magnetic nanolaminate structure is part of a spin valve transistor.

25. (Currently Amended) The method of Claim 20, wherein depositing the plurality of metal oxide layers comprises, in order: depositing a first ~~magnetic~~ metal oxide layer, depositing an insulating layer, and depositing a second ~~magnetic~~ metal oxide layer, wherein each

of the first and second metal oxide layers either comprises a magnetic metal or is a magnetic oxide.

26. (Currently Amended) The method of Claim 20, wherein depositing the plurality of metal oxide layers comprises, in order: depositing a first ~~magnetic~~ metal oxide layer, depositing a first non-magnetic metal oxide layer, depositing an insulating layer, depositing a second non-magnetic metal oxide layer, and depositing a second ~~magnetic~~ metal oxide layer, wherein each of the first and second metal oxide layers either comprises a magnetic metal or is a magnetic oxide.

27. (Original) The method of Claim 20, wherein converting comprises reducing a metal oxide layer to elemental metal.

28. (Original) The method of Claim 27, wherein reducing comprises contacting the layer with a compound selected from the group consisting of hydrogen, hydrogen-rich radicals, carbon monoxide, alcohol vapor, aldehyde vapor and carboxylic acid vapor.

29. (Original) The method of Claim 20, wherein at least one of the metal oxide layers comprises a ferromagnetic oxide selected from the group consisting of magnetite (Fe_3O_4), CrO_2, manganite perovskites doped with alkaline earth metals and metal oxide superlattices.

30. (Original) The method of Claim 20, wherein the magnetic nanolaminate comprises at least one magnetic metal selected from the group consisting of iron (Fe), cobalt (Co) and nickel (Ni).

31. (Original) The method of Claim 20, wherein the magnetic nanolaminate comprises at least one non-magnetic metal.

32. (Original) The method of Claim 31, wherein the non-magnetic metal is copper.

33. - 45 (Withdrawn)

46. (Original) A method of fabricating a sensing element of a read-head comprising:
providing a substrate on which the sensing element is to be formed;
depositing a first ferromagnetic layer by atomic layer deposition (ALD);
depositing a conductive layer over the first ferromagnetic layer; and
depositing a second ferromagnetic layer over the conductive layer.

47. (Original) The method of Claim 46, wherein the conductive layer is deposited by atomic layer deposition.

48. (Original) The method of Claim 46, wherein the second ferromagnetic layer is deposited by atomic layer deposition.

49. (Original) The method of Claim 46, wherein the first ferromagnetic layer comprises NiFe and the second ferromagnetic layer comprises Co.

50. (Original) The method of Claim 46, wherein the conductive layer comprises Cu.

51. (Cancelled)

52. (Currently Amended) A method of fabricating a magnetic memory cell, comprising:

providing a substrate on which the magnetic memory cell is formed;

depositing a first ferromagnetic layer;

depositing a dielectric layer over the first ferromagnetic layer; and

depositing a second ferromagnetic layer over the dielectric layer, wherein depositing at least one of the first or second ferromagnetic layers comprises depositing a metal oxide by multiple ALD cycles and subsequently reducing the metal oxide to elemental metal.

53. (Previously Presented) The method of Claim 52, wherein the elemental metal comprises cobalt.

SUMMARY OF INTERVIEW

Applicants wish to thank the Examiner for the opportunity to discuss the Final Office Action in a personal interview on April 5, 2005 with Applicants' representative. In the interview, Applicants presented several proposed claim amendments that they feel clarify the distinction between the claimed methods and those disclosed in the Gates et al. reference. The Examiner suggested that the amendments should be presented along with a Request for Continued Examination. The Examiner also indicated that he would not issue a first Final Office Action in response to a Request for Continued Examination.